

CONFIDENTIAL



Submerged booster pumps installed in each tank deliver fuel under pressure when required. Each tank is equipped with a main pump and a feed pump which are mounted in diagonally opposite corners. The main pump draws from a reservoir integral with the tank and delivers fuel to the engine. The feed pump continuously refills the reservoir during periods of low fuel level and adverse tank attitude. During all moderate flight attitudes the reservoir is also supplied by direct gravity feed through flapper-type check valves from the tank proper.

During normal operation the engines draw from their respective main tanks, and auxiliary tank fuel is automatically transferred through separate piping into the main tanks. Overfilling is prevented by dual float shut-off valves installed in the tank inlet lines. This arrangement permits complete run-out of auxiliary fuel without interruption of the engine fuel flow. The mechanically actuated selector valves also provide direct auxiliary tank-to-engine feed for emergency operation.

Engine cross-feed is accomplished through a conventional manifold system and mechanically actuated cross-feed valves. System design permits cross-feed of any pair of engines from one of their respective tanks. The manifold may also be used to transfer fuel from any tank to any other tank thus achieving complete flexibility of operation.

Ground fueling is accomplished through the manifold and tank level control valves which are common also to the fuel transfer and cross-feed system. Filling points are provided on each side of the fuselage and are accessible from a standing position on the ground. Overwing fueling provisions are also installed to handle fueling at bases not equipped with single point facilities. A fueling control panel located adjacent to one of the fill points provides pre-check and ground control of the filling system valves. The installation permits complete fueling of the aircraft in approximately 18 minutes.

IN-FLIGHT REFUELER FUEL SYSTEM

The fuel system for the in-flight refueler airplane is similar to the logistic transport system previously described, plus the additional tankage and equipment for accomplishing the transfer mission. (See schematic diagram.)

The in-flight refueling transfer system was designed to transfer 110,000 lbs. of JP-4 fuel at a radius of 2,500 nautical miles and at Mach Numbers from .7 to .8. A larger amount can be transferred at a shorter range or a smaller amount at a longer range. The system is capable of delivering 1,200 gallons per minute through each of two hose and drogue installations located in wing tip pods. At this transfer rate, 110,000 pounds of fuel can be transferred in approximately 8 minutes.

CONFIDENTIAL